IGBT Module
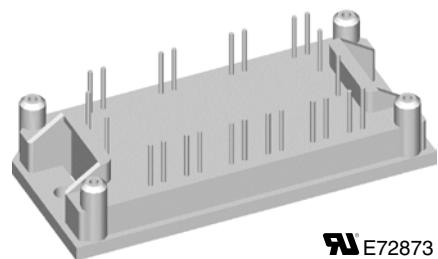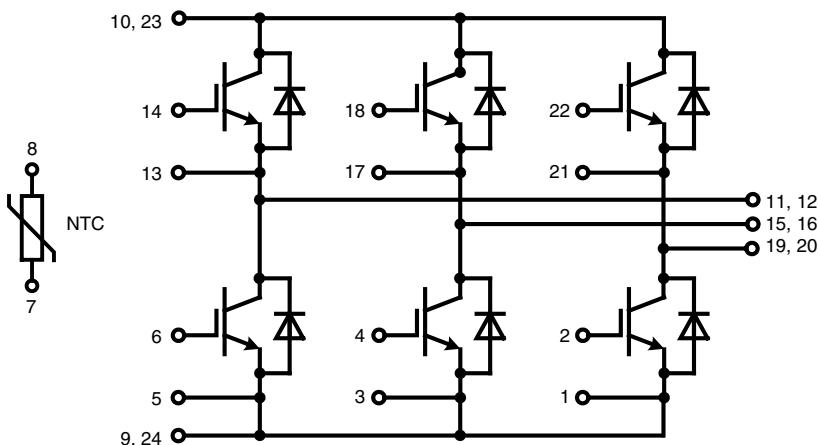## Sixpack
Short Circuit SOA Capability
Square RBSOA

I_{C25} = 58 A
V_{CES} = 1200 V
$V_{CE(sat) typ.}$ = 1.9 V

Preliminary data

Part name (Marking on product)

MWI 60-12T6K

E72873

Pin configuration see outlines.

Features:
- Trench IGBTs
  - low saturation voltage
  - positive temperature coefficient for easy paralleling
  - fast switching
  - short tail current for optimized performance also in resonant circuits
- HiPerFRED™ diode:
  - fast reverse recovery
  - low operating forward voltage
  - low leakage current
- Industry Standard Package
  - solderable pins for PCB mounting
  - isolated copper base plate

Application:
- AC drives
- UPS
- Welding

Package:
- UL registered
- Industry standard E1-pack

IXYS reserves the right to change limits, test conditions and dimensions.

20071113a

IGBTs

Symbol	Definitions	Conditions		min.	typ.	max.	Unit
						Ratings	
V_{CES}	collector emitter voltage	T_{VJ} = 25°C to 150°C				1200	V
V_{GES}	max. DC gate voltage	continuous				±20	V
V_{GEM}	max. transient collector gate voltage	transient				±30	V
I_{C25}	collector current	T_C = 25°C				58	A
I_{C80}		T_C = 80°C				41	A
P_{tot}	total power dissipation	T_C = 25°C				200	W
$V_{CE(sat)}$	collector emitter saturation voltage	I_C = 35 A; V_{GE} = 15 V	T_{VJ} = 25°C		1.9	2.3	V
			T_{VJ} = 125°C		2.2		V
$V_{GE(th)}$	gate emitter threshold voltage	I_C = 1.5 mA; V_{GE} = V_{CE}	T_{VJ} = 25°C	4.5		6.5	V
I_{CES}	collector emitter leakage current	V_{CE} = V_{CES}; V_{GE} = 0 V	T_{VJ} = 25°C			0.5	mA
			T_{VJ} = 125°C		0.8		mA
I_{GES}	gate emitter leakage current	V_{CE} = 0 V; V_{GE} = ±20 V				400	nA
C_{ies}	input capacitance	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz			2530		pF
$Q_{G(on)}$	total gate charge	V_{CE} = 600 V; V_{GE} = 15 V; I_C = 35 A			330		nC
$t_{d(on)}$	turn-on delay time	inductive load T_{VJ} = 125°C V_{CE} = 600 V; I_C = 35 A V_{GE} = ±15 V; R_G = 27 Ω			90		ns
t_r	current rise time				50		ns
$t_{d(off)}$	turn-off delay time				520		ns
t_f	current fall time				90		ns
E_{on}	turn-on energy per pulse				3.5		mJ
E_{off}	turn-off energy per pulse				4.8		mJ
I_{CM}	reverse bias safe operating area	RBSOA; V_{GE} = ±15 V; R_G = 27 Ω L = 100 µH; clamped induct. load V_{CEmax} = V_{CES} - L_S·di/dt	T_{VJ} = 125°C		70		A
t_{SC} (SCSOA)	short circuit safe operating area	V_{CE} = 900 V; V_{GE} = ±15 V; R_G = 27 Ω; non-repetitive	T_{VJ} = 125°C		10		µs
R_{thJC}	thermal resistance junction to case	(per IGBT)				0.62	K/W
R_{thCH}	thermal resistance case to heatsink	(per IGBT)			0.25		K/W

Diodes

Symbol	Definitions	Conditions				Maximum Ratings	
V_{RRM}	max. repetitive reverse voltage					1600	V
I_{F25}	forward current	T_C = 25°C				49	A
I_{F80}		T_C = 80°C				32	A

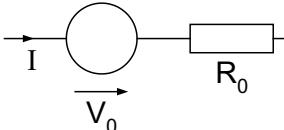| Symbol	Conditions			min.	typ.	max.	
						Characteristic Values	
V_F	forward voltage	I_F = 35 A	T_{VJ} = 25°C		2.6	2.9	V
			T_{VJ} = 125°C		1.8		V
I_{RM}	max. reverse recovery current	V_R = 600 V; I_F = 35 A			35		A
t_{rr}	reverse recovery time	di_F/dt = -600 A/µs	T_{VJ} = 100°C		150		ns
R_{thJC}	thermal resistance junction to case	(per diode)	T_{VJ} = 25°C			0.9	K/W
R_{thCH}	thermal resistance case to heatsink	(per diode)			0.3		K/W

IXYS reserves the right to change limits, test conditions and dimensions.

IXYS

MWI 60-12T6K

Temperature Sensor NTC

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
				Ratings		
R_{25}	resistance	$T_C = 25°C$	4.45	4.7	5.0	kΩ
$B_{25/85}$				3510		K

Module

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
				Ratings		
T_{VJ}	operating temperature		-40		125	°C
T_{VJM}	max. virtual junction temperature				150	°C
T_{stg}	storage temperature		-40		125	°C
V_{ISOL}	isolation voltage	$I_{ISOL} \leq 1$ mA; 50/60 Hz			2500	V~
M_d	mounting torque	(M4)	2.0		2.2	Nm
d_S	creep distance on surface		12.7			mm
d_A	strike distance through air		12.7			mm
Weight				40		g

Equivalent Circuits for Simulation

Symbol	Definitions	Conditions	min.	typ.	max.	Unit
				Ratings		
V_0	IGBT	$T_{VJ} = 125°C$		1.0		V
R_0				31		mΩ
V_0	free wheeling diode	$T_{VJ} = 125°C$		1.5		V
R_0				14		mΩ

IXYS reserves the right to change limits, test conditions and dimensions.

20071113a

Outline Drawing   Dimensions in mm (1 mm = 0.0394")
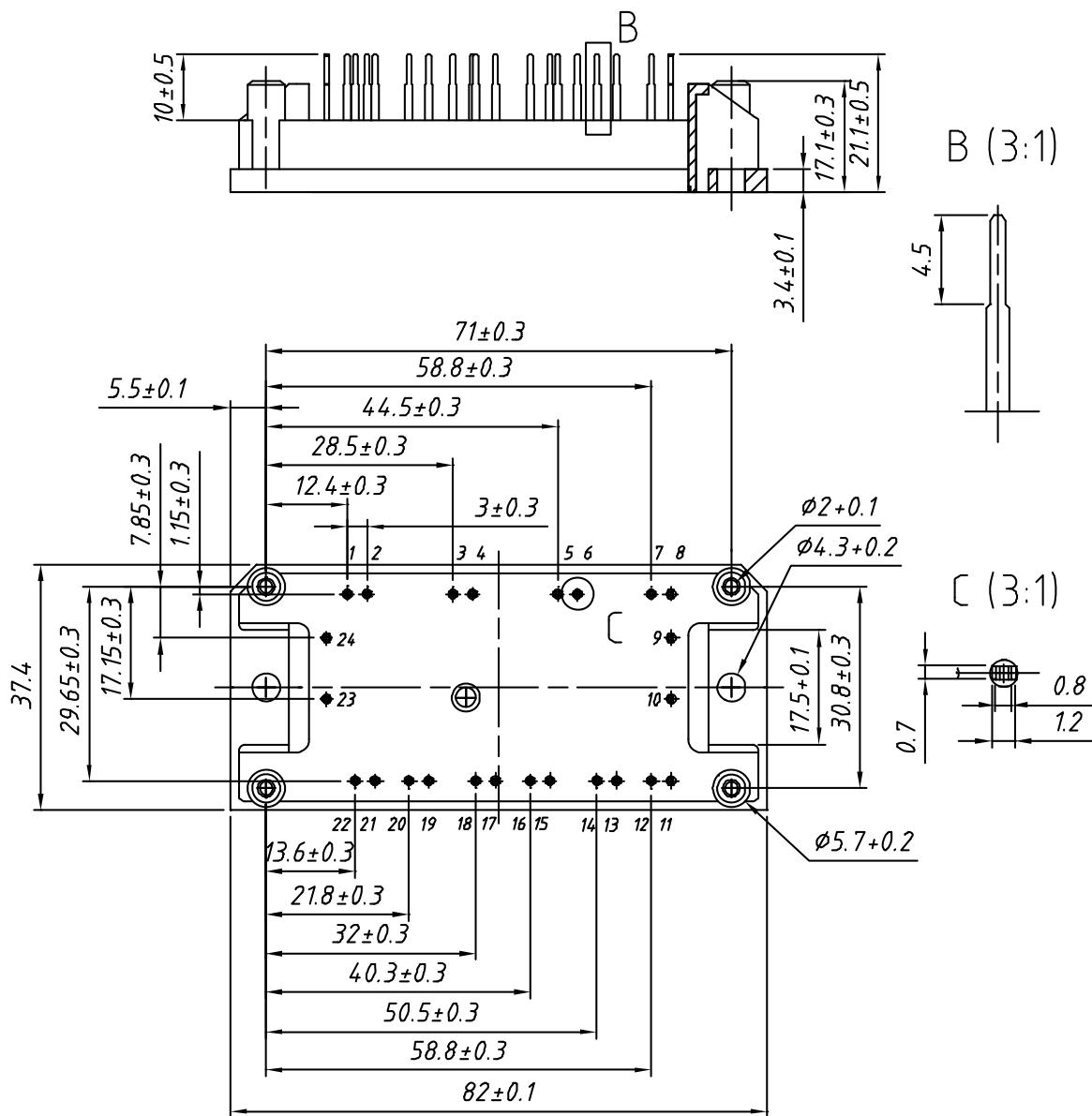
Product Marking

Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	MWI 60-12T6K	MWI60-12T6K	Box	10	500 152

IXYS reserves the right to change limits, test conditions and dimensions.

20071113a

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Discrete Semiconductor Modules *category:*

Click to view products by IXYS *manufacturer:*

Other Similar products are found below :

M252511FV M254043 DD260N12K-A DD285N02K DD380N16A DDB6U144N16R DDB6U145N16L APT20M11JFLL
APT2X101DL40J APT2X21DC60J APT2X30D40J APT2X30D60J APT2X31DQ120J APT39M60J APT47M60J APT50DF170HJ
APT50M50JLL APT50M75JLLU3 APT50N60JCCU2 APT58M80J APT80F60J DZ540N26K B522F-2-YEC MSTC90-16
MT16HTF12864AZ-800G1 MT18HTF12872PZ-667G1 MT18HTF25672FDZ-667H1D6 MT18HTF25672PZ-80EH1 MT18RTF25672FDZ-
667H1D6 MT36HTF51272FZ-667H1D4 MT36HTF51272FZ-667H1D6 MT8HTF12864HTZ-667H1 MT9HTF6472PZ-667G1
MT9HVF12872PZ-80EH1 MT9HVF6472PZ-667G1 ND104N16K 25.163.0653.1 25.163.2453.0 25.163.4253.0 25.190.2053.0 25.194.3453.0
25.320.4853.1 25.320.5253.1 25.325.3653.1 25.326.3253.1 25.326.3553.1 25.330.1653.1 25.330.4753.1 25.330.5253.1 25.334.3253.1